WATER WISE

[PART TWO]

YOU CAN BE GREEN, AS IN ENVIRONMENTALLY RESPONSIBLE, AND STILL HAVE A STATELY LOOKING GOLF COURSE

CONTENTS

ABOUT THIS SERIES

Welcome to the third year of "Water Wise," our special series sponsored by Rain Bird and Aquatrols. As it was in the past two years, our goal in this three-part series, which runs through December, is to examine the fresh-water crisis while educating golf course superintendents and other industry personnel on several fronts of irrigation.

Part two of the series, which you're reading here, analyzes how superintendents can be "green," as in environmental, and still provide golfers with green and healthy golf courses. Veteran superintendent Christopher S. Gray Sr. offers superintendents tips on how to sustain healthy turfgrass without using too much water. In a companion story, Anthony Pioppi reports on professional golf organizations such as the USGA and their aim to educate through a firm and fast approach.

Part three, which runs in December, looks at future government regulation of water use. What can superintendents expect in the next 10 years from lawmakers and regulators in regard to their use?

Part one, titled "Supers Under Scrutiny," ran in October and examined what's behind the increased scrutiny of water use on golf courses and what golf course superintendents can do to quell the emotions of the scrutinizers.

Moving **Toward** a **Greener** Future

BY MICHAEL ROBERTS

IT'S NOT JUST ABOUT USING WATER WISELY ON THE COURSE. IT'S THE RIGHT THING TO DO

Individuals, organizations and businesses around the world are placing a tremendous emphasis on "going green." On a personal level, that might mean installing a low-flow toilet or cutting your daily shower down from 10 minutes to five. For organizations, going green may translate to sponsoring an electronics recycling drive or switching from a printed newsletter to an electronic version. Meanwhile, a business could be more environmentally conscious by recycling office paper or installing a more efficient heating and cooling system. However, for those who work in the golf course industry, going green can be a very complex process — one that involves a significant change in every aspect of their jobs, from purchasing decisions and course maintenance to marketing and sales.

Golf courses have always had the reputation for being beautiful, impeccably manicured escapes from our everyday lives. Now, as golf courses feel the pressure to use less water and become more environmentally sustainable, superintendents may feel as if they're being pulled in two different directions. Do they try to keep their courses in their expected states of emerald green to continue to offer the experience that golfers have come to expect? Or do they risk losing their courses' aesthetic edge by cutting back on water and fertilizer use?

The fact is, that with today's advances, superintendents can combine those two objectives. They don't have to sacrifice beauty for sustainability. With the latest developments in golf course irrigation technology, changing agronomic cultural practices and savvy water harvesting techniques, it's more possible than ever to maintain a course that not only looks good, but also embodies the spirit of environmental stewardship.

So, how can golf courses move toward a greener future? For some superintendents, it means completely rethinking the way they manage and maintain their courses. For others, it simply means adding to the number of sustainable activities they've already embraced, perhaps without even realizing it. There's no one single path that every superintendent should follow to achieve greater sustainability. Some might decide to switch out some turfgrass areas for native plants. Others may decide that now's the time to replace outdated irrigation system components with today's more efficient rotors and sophisticated control systems.

Regardless of how a course becomes "green," the fact is that the time to move toward sustainability is now. It's not just about using water wisely on the course. It's just the right thing to do — for our future and the future of our industry. Through hard work and dedication, everyone in the golf industry — from manufacturer to distributor to superintendent to patron — can make a huge difference. And that's what The Intelligent Use of Water is all about — each of us making choices at home, at school or at work that can have a cumulative, positive impact on our environment. ■

Roberts is director of Rain Bird's Golf Division.

RAIN BIRD

The **Bad News** That's Really **Good News** – There's No Silver Bullet

BY DEMIE MOORE

We know that usually there's no one simple answer to a problem. However, that doesn't stop us from often wishing there was just one answer. This is true in many different areas of life – so it's no surprise that it applies to water use in golf course maintenance as well.

A single, simple answer seems like a nice idea. However, after giving it more thought, I have to conclude that a single, simple answer – or wanting one or choosing what we might think is one – really has a high risk associated with it as well. The results, and therefore the success or failure of the solution, depends so much on the "one" solution chosen. By contrast, if the solution is a "recipe" of things that's consciously selected, there's a greater chance of a good result. So while it seems like bad news, I'll suggest that "no silver bullet" is really good news – because you have many and therefore more options for making a difference and being successful.

Applied to water use in golf course maintenance, this means there are multiple factors that can be managed to deliver a green golf course in a "green" and water-efficient way. We don't believe the new green is brown – although we do think that golf as a whole needs to, and can be, even more water wise than it is at present. It's not just about how much water you apply, or what kind of turf you have, or the irrigation program you have or how many acres of turf you have, or the kind of water you use, or, or, or . . . Rather, it's about managing all of these and more together to be able to produce excellent playing conditions using as little water as possible and as efficiently as possible – making every drop count.

The October issue of *Golfdom* addressed the perspectives of some who have negative views about the golf industry's use of water. There were also some great examples of what certain superintendents and superintendent associations have and are doing to proactively show their commitment to good water stewardship – not just on their golf courses but in their communities as well. Hopefully, that information provided further insight into some issues to address and ideas for some ways to take action. In this month's edition, superintendent Christopher S. Gray Sr. discusses even more ideas to take action. He offers tips on how you can keep the golf course green and still be "green" and water efficient.

I have to add that, while there's no one answer, one thing that's always important is the soil – including how it receives, retains and releases water. No matter what else you do, if your soil is not functioning as intended, you will not get the results expected – and the chance of wasting water as well as other inputs is increased. While this may seem like a no-brainer, the fact is that the soil is often taken for granted or considered in a theoretical way rather than monitored and managed for water efficiency on an ongoing basis. Aquatrols is pleased to have a role in managing this important part of the water-management equation by giving you tools for more control over the water in your soil.

As we all know, golf courses are a great environmental asset when managed well. Good management always involves multiple activities. Good management of water on the golf course is no different. We hope you enjoy this issue and are inspired to find more ways than ever to use water more efficiently and produce a great playing green golf course in a water-wise way. ■

Moore is an Aquatrols director, involved with corporate relations, education and training.

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ANALYSIS

The Best of

BROWN IS THE NEW GREEN — at least according to the United States Golf Association and its president, Jim Hyler. By now, I'm sure you've heard this catchy little motto being spread throughout the golf course maintenance industry. Since becoming the USGA's president earlier this year, Hyler has been on a gallant quest of widespread acceptance with his firm-and-fast conditioning concept through reduced water usage.

Now if your members and golfers are anything like mine, this off-color message is being met with a less-than-enthusiastic embrace. One of my most favorite members summed up his stance on the issue rather simply with this remark: "Brown is the new green? Son, that dog just don't hunt!"

This interesting reaction shouldn't come as a big surprise considering the unfortunate timing of events at this year's U.S. Open at Pebble Beach Golf Links.

Both Worlds

YOU CAN BE GREEN, AS IN ENVIRONMENTALLY RESPONSIBLE, AND STILL HAVE A STATELY LOOKING GOLF COURSE

BY CHRISTOPHER S. GRAY SR., CONTRIBUTING EDITOR

During a USGA press conference before play began, Hyler openly promoted his mission of brown being the new green and praised Pebble Beach for its environmental sustainability programs. Then Mother Nature took control and dried out Pebble's greens to the point that they resembled a third grader's mosaic art project.

Then to add insult to injury, the world's No.1 player, Tiger Woods, openly criticized the playability of the greens by calling them "awful." Justified or not — when Tiger talks, people listen.

This disastrous chain of events has unfortunately created an overly negative perception of virtually everything the USGA and Hyler were pushing to create. It's as simple as guilt by association. This perception now harms the positive, underlying environmental message trying to be relayed to the general public, which is truly regrettable.

But there's a larger issue here that really needs to be addressed and clarified.

While I wholeheartedly applaud this noble and critical endeavor by the USGA on reducing the amount of water we use in our industry, I have to question the need for bringing "brown" into the equation at all. Specifically, I strongly disagree with the implication that you can't be environmentally responsible and retain your green color at the same time.

Let's consider the economic reality in which we work. The golf industry is, at its heart, a customer service business with a profitability model that demands giving the customers what they want. Survey after survey of golfers has clearly indicated that course conditioning tops the list of their expectations. And, like it or not, a big part of course conditioning includes the color green in the minds of our golfers.

So it's our professional pursuit, as superintendents, to be both environmentally responsible and maintain the green color of our golf courses, something we certainly can accomplish. It's simply a matter of maintaining a healthy turfgrass plant through common-sense practices, which many of us have pushed the envelope on over the years.

A return to common sense

I advocate the widespread application of common sense as the most useful tool to realize both environmental eco-consciousness and provide a beautiful, healthy green playing surface for our golfers.

Almost without exception, most issues hindering our ability to achieve both "green" goals have been self-induced by people within the golf industry, not the actual golfers. As superintendents, some of these problems we produced ourselves, while others have been passed down to us. Either way, a simple trip back to Agronomy 101 and Practical Golf Course Management 102 classes will help guide us back to where we need to be.

Here's a look at some of the problems and possible solutions that will allow us to maintain our environmental stewardship efforts while maintaining our green color — and use less water in the process.

Appropriate turf varieties

Can someone tell me when we became smarter than Mother Nature? I only ask because I distinctly remember learning the difference between cool-season grasses and warm-season grasses, and in what geographic climates they perform best. Apparently, some "decision makers" came to the brilliant conclusion over the years that cool-season grasses can be properly maintained in warm-season climates and vice-versa.

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PHOTO ILLUSTRATION BY: ISTOCK INTERNATIONAL INC.

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For years, creeping bentgrass has crept farther and farther south into hot and humid climates clearly not suitable for its intrinsic nature. However, in an effort to capitalize on the smooth putting surface that creeping bentgrass provides, course after course south of the Mason-Dixon line has installed creeping bentgrass greens, convinced they can maintain the cool-season grass in a sizzling climate.

Yes, creeping bentgrass can survive in Southern climates, but the amount of nurturing required to keep it healthy is unbelievably enormous. In terms of chemical applications alone, creeping bentgrass requires copious amounts of fungicide protection — not to mention the frequent irrigation necessary to fight back the fierce Southern heat. Even with the proper resources to manage creeping bentgrass in a warm-season climate, staying on top of the greens is a daunting task.

After a blistering, hot summer like we just experienced, go ahead and ask any superintendent managing creeping bentgrass in the Southern half of the country how his or her greens held up. Then ask those superintendents how much sleep they lost.

In the end, this solution of this basic problem is to utilize the proper species of turf in the appropriate climate. In the case of creeping bentgrass in the South, replacing it with one of the new ultra-dwarf bermudagrass varieties makes a lot of sense. Obviously, that's much easier to say than to actually implement. But the economic liabilities that creeping bentgrass pose to the maintenance budget ultimately makes it a losing proposition for environmental responsibility while providing healthy, playable turf.

Choosing the appropriate species of turf, along with the right variety, is a fundamental solution for proper course management. Trying to challenge this fundamentally correct philosophy makes absolutely no sense. In retrospect, I think it was day three of Agronomy 101 that covered this basic concept.

Irrigation efficiency

The lifeblood of any golf course is its irrigation system. The methods we employ to irrigate have an enormous impact on our ability to provide a green golf course. These same irrigation practices also play a colossal part of being environmentally responsible. In short, our ability to irrigate efficiently is critical in pursuing our environmental successes while producing a healthy, green turf plant.

Irrigating efficiently, by common-sense definition, means making water applications without being wasteful — irrigating only where necessary and only when necessary. But when applying this common-sense philosophy to the golf industry, you quickly realize it means vastly different things to each superintendent. And that's just fine.

Whether applying wetting agents to help retain moisture in the soil profile, changing out your standard plastic nozzles with high-efficiency stainless-steel nozzles or doing a complete irrigation system audit from water supply to water hitting the turf, the importance of being as efficient as possible, as soon as possible, can't be understated.

With water restrictions and regulations very likely heading our way, common sense dictates that being prepared now will help curtail this problematic issue once it does come to fruition.

Rolling, rolling, rolling

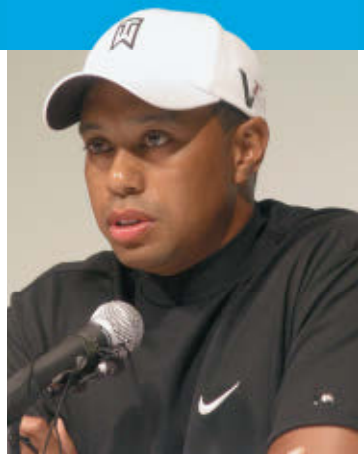
Maintaining a healthy turf plant is the best way to keep it green, which means limiting the amount of stress it has to endure. When it comes to our putting greens, however, plant stress comes with the territory. Keeping our greens quick and smooth is necessary to meet golfers' expectations. Again, we are a service industry. But rather than dropping the height of cut and increasing the plant's stress to accommodate these demands, you can achieve the same effect by utilizing a greens roller.

Before widespread production of rollers, it was common

Cultural practices, such as aerification, are vital to keeping turfgrass healthy and green.

practice to drop the height of cut in order to speed up the greens at the onslaught of golfer demands. The real problem involved the timing of it all. Golfers started ramping up their speed demands at pretty much the same time the climatic conditions told you not to start taking off leaf tissue. This all-too-familiar scenario set up the woefully uncomfortable balancing act between overstressing greens and keeping the golfers somewhat happy.

Luckily, we have some common-sense salvation to cling to with employing an alternate-day rotation schedule between mowing and rolling. Because you're not mowing your greens so frequently and allowing the turf plants to retain their much-needed leaf tissue, the greens are easier to keep healthier and greener. Frequently rolling greens achieves both the increased green speed and smoothness the golfers demand, but with much less stress than mowing. In the end, it's a win-win situation.



"To add insult to injury, TIGER WOODS CALLED PEBBLE'S GREENS 'AWFUL.' Justified or not, when Tiger talks, people listen."

Spray-on green

Depending on the fertilizer type that tops your favorite list, knowing just how much nitrogen to apply to generate that ideal green color within the plant can be a very fine line. So much, in fact, that often times we over-apply the amount of actual nitrogen just to ensure we hit our goal. Unfortunately, this practice, while certainly making the turf green, also adds a surplus of nutrients to the soil that will ultimately end up being flushed through the profile without any benefit to the turf.

Common sense dictates cutting back on these fertilizer applications that are more about color and less about actual turf nutrition. With timely soil analysis reports, we can feed the soil the accurate amounts of nutrients to achieve proper plant nourishment levels, even at the expense of a little nitrogen.

To counteract this loss of nitrogen for color, applications of chelated iron will provide you with the color that golfers anticipate. Because chelated iron provides iron in a form immediately available to the plant, it quickly provides a dark, green color to the turf. Depending on the foliar rate applied, this color lasts about two to three weeks.

I love chelated iron because it's economical and environmentally safe, with an application remaining in the soil for extended feeding for the turf. While mainly used on putting greens, chelated iron should also be considered for application to both fairways and tees.

The value of cultural practices

Without question, the importance of cultural practices can't be overemphasized when it comes to plant health and staying green. It doesn't matter whether you're aerifying, verticutting, slicing, spiking or topdressing — all of these practices are vital to maintaining a healthy, green playing surface under normal circumstances. These same procedures become even more imperative when you're implementing environmental stewardship programs that directly affect the amount of water, nutrition and protective chemical applications.

I've visited several golf facilities that have significantly reduced the amount of cultural practices because of their labor budget being reduced, leaving them with less manpower than in previous years. This is unfortunate. Common sense suggests the financial savings that can be realized from well-thought-out environmental programs will easily cover the costs of performing these basic agronomic practices.

There's a symbiotic relationship between cultural and environmental programs. The cultural practices provide increased oxygen and water infiltration to the root zone of the turf, making it easier for the plant to maintain its green color.

Meanwhile, properly developed and executed environmental programs provide ample financial savings through reduced inputs necessary to manage the turf appropriately. That's what I call common sense.

The iconic leader of the Muppets, Kermit the Frog, sings, "It ain't easy being green." No, it's not. That's why we need to use common-sense to ensure we, as superintendents, meet all of the demands of our position: playable, visual and environmental.

You definitely can be environmentally "green" and provide a green color for your course. So, for me, brown is not the new green. It can't be. It's like saying Fozzie Bear is the new Kermit the Frog. And that's something people simply aren't ready to accept, nor should they have to. ■

Gray is superintendent and general manager of the Marvel Golf Club in Benton, Ky. Gray has won several awards for his environmental prowess on the golf course. He's also an award-winning contributing editor and columnist for Golfdom.

PHOTO COURTESY: JACOBSEN (LEFT); PHOTO BY: LARRY AYLWARD (TOP)

Getting Away from Lush and Green

PROFESSIONAL GOLF ORGANIZATIONS SUCH AS THE USGA AND THE PGA TOUR AIM TO EDUCATE THROUGH A FIRM AND FAST APPROACH

WHEN THE FIRST images of the Pebble Beach Golf Links putting greens came across television sets during the U.S. Open last June, the collective golf world was caught off guard.

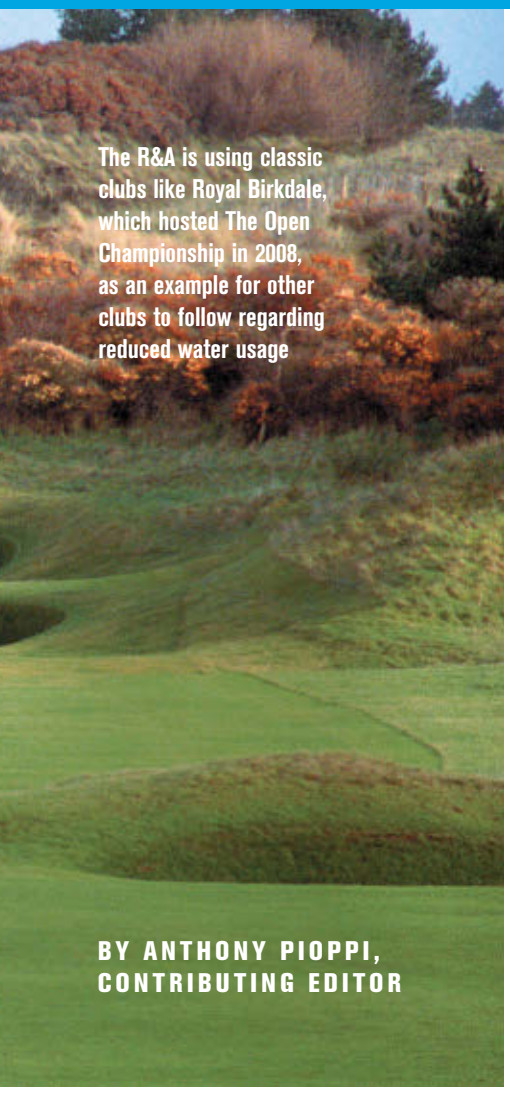
Used to seeing lush golf courses as the color of green felt on a poker game table, the majority of commentators and viewers alike were faced with greens that, at best, were a mishmash of colors and, at worst, looked blotchy and uneven. To many people, there appeared to be something wrong — something very, very wrong — with Pebble Beach's greens.

But the fact was the putting greens were all right — very all right. Under the guidance of the United States Golf Association, water usage on the venerable layout had been reduced. To the untrained eye, the turfgrass may have appeared sick or dying, but it wasn't. Rather, it was healthy and played wonderfully. What appeared to be bumpy or uneven putting surfaces was merely a trick of the camera lens. The greens rolled great.

The setup wasn't an aberration.

"We wanted to present Pebble Beach as a firm, fast golf course," says USGA President Jim Hyler. "It's a better test of golf. It's not just a point-to-point game. The greens did look a little funny (on television). But that didn't bother us."

Pebble Beach was a clarion call by the USGA to the golf world that the norm is no longer acceptable and that how golf courses are maintained must change. It was the first time one of golf's most powerful bodies made such a public statement in the United States.



The R&A is using classic clubs like Royal Birkdale, which hosted The Open Championship in 2008, as an example for other clubs to follow regarding reduced water usage

PHOTO BY: ALAN C. BIRCH, COURTESY OF ROYAL BIRKDALE GOLF CLUB

BY ANTHONY PIOPPI, CONTRIBUTING EDITOR

In the British Isles and Europe, The Royal and Ancient Golf Club has been trumpeting the same message, especially through its venues that host the Open Championship. In the United States, the PGA Tour and the LPGA Tour have been doing their parts by insisting host clubs don't over-water their layouts so they can produce golf courses where golf balls roll on fairways and don't sit and spin back on every shot hit into a green.

Hyler made water conservation through sensible irrigation a priority during his first speech as USGA president during the organization's annual meeting last February when he told the assembled, "I believe our definition of playability should include concepts of firm, fast, and yes, even brown, and allow the running game to flourish."

To some, the words sounded hollow. Following the speech, one prominent golf writer opined: "While Pebble Beach has a cutting-edge maintenance facility and other 'green' practices, we're still likely to see a very green golf course this June."

But Hyler stuck to his word, and people didn't see a very green golf course.

The USGA took the opportunity during the tournament to explain to viewers why the course looked the way it did during a two-minute piece broadcast on NBC that highlighted the benefits of water reduction. Announcer Dan Hicks interviewed Hyler live.

"We talked about that we're really trying to raise the awareness level," Hyler says.

Hyler has also repeatedly lauded the USGA Green Section for the work it has been doing to reduce water usage. He calls the Green Section, "our best-kept secret."

It's a strategy The R&A has been using for years — holding up the classic links layouts as an example for others to follow.

"The greatest thing is we can use the Open venue as an example of what can be achieved," said Steve Isaac, director of golf course management for The R&A.

The American tours have been practicing water conservation one venue at a time.

On the LPGA Tour, for instance, the association insists that balls don't plug into fairways. Golf shots coming into greens — depending if they are hit out of the fairway, light rough or deep rough — should hold, bounce and hold or roll, says certified golf course superintendent John Miller, the LPGA Tour agronomist.

Miller says the goal is "to put down as much water as a plant needs to survive until the next watering."

Cal Roth, senior vice president of agronomy for the PGA Tour, oversees the conditions of all the tour stops.

"We want a site to be as firm as we can get it without hurting the golf course," he says. "We try and dial down the system."

Miller and Roth usually deal with venues that have hosted events for several years. It's the new sites where the push back to the agronomic practices occurs.

"It's mostly an education process," Roth says.

Adds Miller, "The big fear is we're going to cut off the water completely."

Another reason for the hesitation to change is that clubs are worried about how their courses are portrayed.

"They say, 'We want our golf course to look great on TV'; they want to portray lush and green," Miller says. "There are other ways to look lush and green besides water."

Miller's most problematic venues typically occur at LPGA sites out of the country. In 2010, events were held in Malaysia, South Korea, Thailand, Mexico and Brazil.

He named Mission Hills Country Club in Rancho Mirage, Calif., and Superstition Mountain (Ariz.) Golf Club as two of the sites that are best at reducing water usage.

Roth, who has been with the PGA Tour for 35 years, says some clubs have disregarded the directives a few times.

"We've had water run at night that wasn't supposed to be," he adds, noting that during his tenure he has witnessed an overall rise in the acceptance of reduced irrigation practices. "But it's pretty rare they go against what we recommend. For the most part, the guys we work with are doing a lot better job now. I've been around long enough to see trends and changes."

Part of the reason for the transformation is the new technology that

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allows superintendents to be better at water management.

Roth says moisture meters were used at East Lake Golf Club for the Tour Championship this year — not just on greens, but also on fairway landing areas.

"It allowed them to see how they can take [water] down on a daily basis," Roth says. "They could see how low they could go and still maintain a healthy surface."

Since 2008, all PGA Tour agronomists carry moisture meters for monitoring putting greens and a number of superintendents at the sites have purchased their own meters.

"It's improved our efficiency at maintaining greens," Roth says.

The R&A, besides staging the Open and British Senior Open, also conducts a number of amateur events and oversees Open qualifiers around the world. Many times those clubs are hesitant to follow The R&A's guidelines fearing turf will be damaged.

"There is some concern by the venues that if we have a very, very dry year, we're going to tip them over the edge, but we're careful of that," Isaac says. "We know we're borrowing the course for a week. We don't want to get to the point where we lose greens."

The lesson The R&A tries to instill — not just on its tournament venues but on all golf courses — is that reducing irrigation and practicing sustainable golf can be implemented everywhere.

"Not every course is a links, but the basic principals still apply," Isaac says.

He points to Kingston Heath in Australia, which hosted a 2010 regional Open qualifying tournament as a perfect example.

"That golf course typifies links conditioning in an inland setting," he says.

That word must spread for the message to get across to the general public.

"It's golfer education we need to embark on, and the USGA has done a great job on that," Isaac says.

For The R&A, the message is being disseminated via the Web site www.bestcourseforgolf.org, with separate paths on the site for greenkeepers, administrators and golfers to follow.

The USGA's Hyler continues to preach the word around the country.

"This is not the kind of thing you say one time," Hyler says. "I'm not suggesting golf courses be brown; I'm suggesting you reduce water use."

One problem Hyler has come up against is that so many golf courses in the United States are tied to real estate, and in those situations a green layout is considered a selling point.

Another obstacle is TV golf announcers, many of whom laud a lush, green golf course as if that is the ideal condition.

"Commentator education, I don't know who does that, but it would be useful," Isaac says. "When viewers listen to commentators, they accept them as experts."

The LPGA's Miller is of the same mind.

"We've got to sell it to the Golf Channel people," he says, adding that he rarely has the opportunity to chat with the announcers since he's only occasionally at the venue when the tournament is being played. "The good news is we have the same commentators. The bad point is that I'm out ahead so I don't get a chance to see them."

He knows that the "brown" word hasn't yet permeated the thinking of most announcers or viewers.

"To the average golfer watching on TV … green means healthy," Miller says. "And brown means unhealthy."

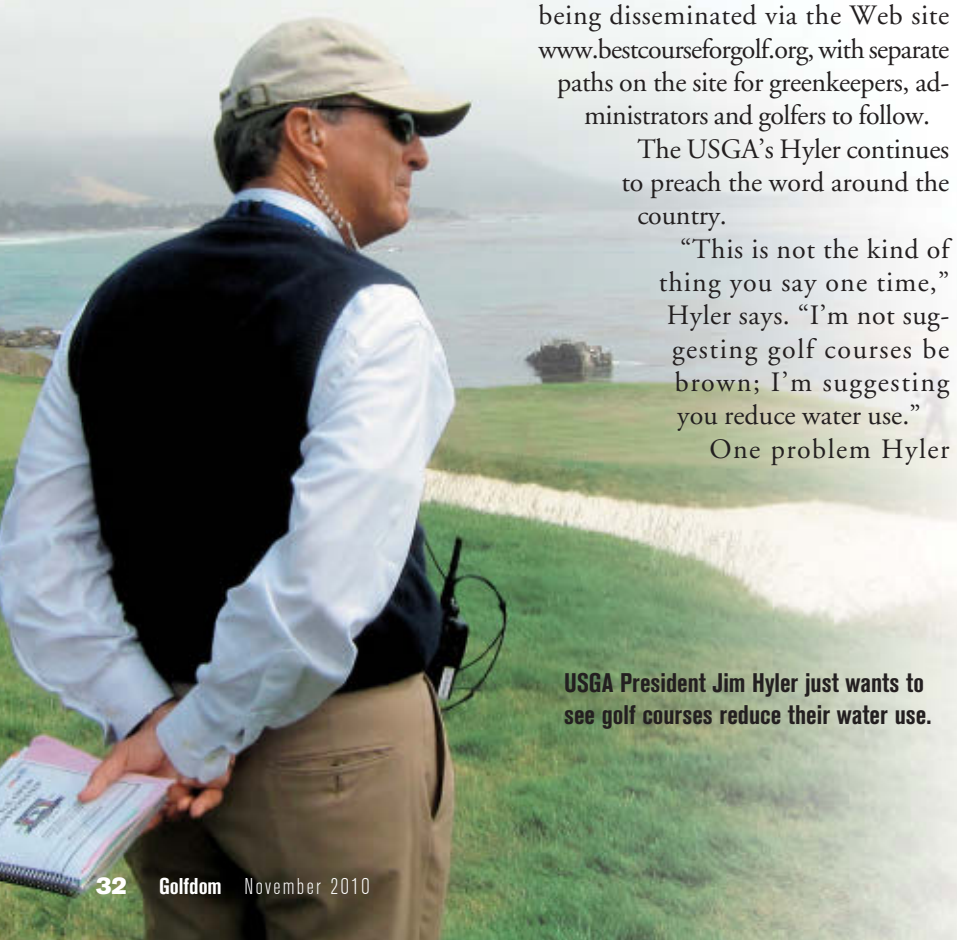
There is, however, hope that golfers are coming around to the idea that what they view as the ideal, is in fact, impractical.

"It's not as fast as I would like it to be," says the PGA's Roth of the change in thinking. "My opinion is that the general public thinks green is good."

Miller foresees a long journey.

"We didn't get into this overnight; we won't get out of it overnight," Miller says, warning that success isn't guaranteed. "We can do a great job selling it, but if the end user's not willing to accept it, we've run up against a brick wall." ■

Pioppi is a longtime Golfdom contributing editor who prefers a firm and fast lawn at his home in Middletown, Conn.



USGA President Jim Hyler just wants to see golf courses reduce their water use.

PHOTO BY: GEOFF SHACKELFORD